6.5 Case 2: Exceptions to National MRSA Prevention Policy for a Medical Resident with Untreatable MRSA

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6.5.1 Background

Antimicrobial resistance (AMR) is an increasingly serious threat to global public health. First described in 1961, methicillin-resistant *Staphylococcus aureus* (MRSA) is one of the best known antimicrobial resistant (AMR) pathogens. It has become an increasingly serious cause of health care associated infections worldwide (Boyce et al. 2005). People infected with MRSA, which resists standard beta-lactam antibiotics, can present symptoms or be asymptomatic carriers.

In a community setting, most MRSA carriers have few or relatively minor symptoms. In hospitals, however, open wounds, invasive devices, and weakened immune systems pose a greater risk of infection, making MRSA a serious health problem. The presence of Panton-Valentine leukocidin (PVL) cytotoxin in a *Staphylococcus aureus* has the potential to cause more severe infections, such as pneumonia and skin infections, although these are rare events considering the number of asymptomatic carriers (Gorwitz 2008).

Worldwide, prevalence of MRSA among the general public and in hospitals varies widely, as do the strategies used to control hospital-acquired MRSA (Boyce et al. 2005). In the Netherlands and Scandinavia, for example, MRSA causes less than 1 % of all cases of *Staphylococcus aureus* bacteraemia. This percentage contrasts with percentages of up to 50 % in other European countries (Wertheim et al. 2004). To maintain this low incidence, hospitals in the Netherlands and Scandinavia follow a strict AMR related search and destroy policy. This policy consists of active screening of patients and staff for MRSA, strict enforcement of contact precautions, and judicious use of broad-spectrum antibiotics (Boyce et al. 2005).

In the Netherlands, the Working Party on Infection Prevention (WIP) has incorporated this search and destroy policy into national MRSA guidelines. The WIP, funded by the Dutch Ministry of Health, was founded 25 years ago by respective professional societies of physicians, hygienists, and microbiologists. WIP-issued guidelines are professional standards most health professionals and institutes follow (Boyce et al. 2005).

The 2012 WIP guidelines for MRSA prevention in hospital settings involve three principal procedures, which address both symptomatic and asymptomatic patients, since carriers can also transmit the infection. First, patients with MRSA are isolated in single rooms and treated to eradicate MRSA. Isolation procedures require those entering the patient's room to wear a gown and mask. Second, hospital patients at increased risk of being carriers are also placed in isolation until proven MRSA free. Patients considered potential carriers include all patients (a) transferred from hospitals abroad to Dutch hospitals, (b) transferred from Dutch hospitals with an existing MRSA condition, and (c) placed in the same room as a patient subsequently detected unexpectedly with MRSA. Third, hospital staff who care for MRSA patients are

screened for MRSA and treated with antibiotics and mupirocin nasal ointment if found positive (Boyce et al. 2005).[2]

Nationally, this search and destroy policy has proved highly successful and effective at maintaining a low prevalence of MRSA in Dutch hospitals (van der Zee et al. 2013). However, MRSA screening and treatment of health care staff can seriously affect their lives because they cannot return to work unless testing confirms MRSA-negative status. Fortunately, MRSA colonization (antibiotic-resistant strain of bacteria that lives on skin) is usually temporary, but when persistent, eradication requires longer-term efforts. Although untreatable colonization is rare, it can necessitate job change (Boyce et al. 2005).

6.5.2 Case Description

A Dutch medical student has the potentially more virulent Panton-Valentine leukocidin (PVL) form of MRSA colonization yet shows no signs or symptoms of infection. More than a year ago, a routine MRSA screening of health care personnel providing care for MRSA-positive patients detected the colonization. Since then, the student has been treated intensively but unsuccessfully in an attempt to decolonize her. During this decolonization period, the medical student was barred from performing patient-related interventions, temporarily interrupting her medical residency. After initial treatment with mupirocin nasal ointment and antibiotics proved ineffective, a more stringent hygiene regime was added that included hand, nose, hair, and body scrubbing with disinfecting soap. Additional precautions included simultaneous treatment of household members and disinfection of the family home. Despite these efforts, her MRSA status has remained positive. WIP guidelines bar any health care worker diagnosed with MRSA from performing patient-related interventions. Unable to complete the residency requirement of at least 1 year of patient care, the medical student was advised to pursue a career in another profession.

Refusing to accept this verdict, she united with other similarly excluded medical students to launch a protest that gained media attention. In a press interview, she acknowledged that potential iatrogenic spreading of MRSA could risk institutional or community safety. However, she questioned the seriousness of this risk and argued that the protesting students were being unfairly targeted. She pointed out that medical staff are not routinely screened for MRSA unless they have cared for a MRSA-positive patient or have worked in a country with high MRSA prevalence. Because MRSA can be acquired in the community, potentially many undiagnosed MRSA-colonized medical staff or residents currently work in hospitals. She also pointed out that other European countries, despite a higher MRSA prevalence, allow MRSA carriers to work in health care settings. Despite being persistently MRSA positive, these professionals can safely work in medical specialties that do *not* involve direct patient contact.

[2] An English version of the WIP guidelines is available at http://www.wip.nl

As a result of this press coverage, the public has pressured the WIP to reconsider its guidelines. Because iatrogenic spreading of disease has public health implications, you, as a public health professional, have been asked to serve on a WIP committee charged with considering whether the guidelines need to be changed to address these and future cases. The chair of the committee wants to discuss the following questions.

6.5.3 Discussion Questions

1. Who are the main stakeholders in this case, and what are their primary interests?
2. What is the ethical rationale for allowing or not allowing medical students who are MRSA carriers to continue their medical education?
3. What would be your ethical justification for either recommending or not recommending universal screening for all medical students and doctors?
4. How would it change your recommendation if
   (a) The MRSA of this student was not PVL positive?
   (b) The overall prevalence of MRSA in the Netherlands was high or rapidly increasing?
   (c) There was little or no evidence that excluding colonized health care workers decreases risks to patients?
   (d) The students agreed to pursue medical specialties that do not involve patient care?
5. Although the European Union (EU) is increasingly standardizing its AMR policy, some EU countries have less stringent regulations than others. Would it be ethical to advise the medical students in question to finish their education in a European country with a less stringent MRSA policy?

References

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